



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D4292-1

Job Sheet 170388



Part No: D4292-1

Job Qty: 12 ea

Part Name: Fitting



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/16/18

Job Tracking No:

Due Date: 2/16/18

Created By: Mario Poulin

Type: SOLD

Description:

Note: DWG REV C IPP REV:A NEW ISSUE 10-11-14 JLM VERIFIED BY:DD IPP REV B: AS PER REV B 11-02-15
JLM VERIFIED BY:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	12 Ea	2/14/18	2/14/18	0.00	0.00	Start Up Machining-2		J.P. 18-01-24
100	Bandsaw	12 pcs	2/14/18	2/14/18	0.00	1.02	Bandsaw1		J.P. 18-01-24
110	CNC Vertical Machining	12 pcs	2/15/18	2/15/18	0.51	24.68	HAAS 5 Axis		J.P. 18-01-24
120	QC	12 pcs	2/15/18	2/15/18	0.00	0.00	QC2 Machining-2		J.P. 18-01-24
130	QC	12 pcs	2/15/18	2/15/18	0.00	0.00	QC8 Machining-2		J.P. 18-01-25
140	HandFinish	12 pcs	2/15/18	2/15/18	0.00	0.67	HandFinish1		J.P. 18-01-25
145	Powdercoat	12 pcs	2/15/18	2/15/18	0.00	0.89	Powdercoat1		J.P. 18-01-25
150	QC	12 pcs	2/15/18	2/15/18	0.00	0.00	QC3		J.P. 18-01-25
151	Small Fab	12 pcs	2/16/18	2/16/18	0.00	0.54	Small Fab-6		J.P. 18-01-25
152	QC	12 pcs	2/16/18	2/16/18	0.00	0.00	QC5		J.P. 18-01-25
180	Packaging	12 pcs	2/16/18	2/16/18	0.00	0.00	Packaging3-2		J.P. 18-01-25
190	QC21-SA	12 Ea	2/16/18	2/16/18	0.00	0.00	QC21		J.P. 18-01-25

Part Op 100 - Cut Blank to 6.250" ****GRAIN DIRECTION MUST BE ALONG 4.00"*****

Descriptions: 110 - 1-Machine per folio FB002

145 - MASK THREADED HOLE

151 - INSTAL HELICOIL

M 138467 START: 2:35 CUT: 3:20 FINISH: 3:05

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	M7075T73B4.000x4.000	6	3	0	0
151-Small Fab	MS21209F1-10	12	13	0	0

FM 137951-5

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Fitting	0.063Inches ± 0.010	0.073 0.053	csk	.063
2	Fitting	0.250Inches + 0.030 - 0.010	0.280 0.240		.250
3	Fitting	0.125Inches + 0.030 - 0.010	0.155 0.115		.124
4	Fitting	2.950Inches ± 0.030	2.980 2.920		2.945
5	Fitting	0.275Inches ± 0.010	0.285		.272

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																					
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																																						
Large Fab ☐	Composite ☐	Supplier ☐																																							
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval																																					
Description Work		Disposition																																							
Job No: 170388 Start up Operation 01/24/18 Original Serial #: S035152 D4292-1 PART NO: Revision: Operation: Change No: Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K64 1K7 CANADA TEL: 1 613 632-5200 Email: sales@dartaero.com www.dartaerospace.com		Job No: 170388 Start up Operation 01/24/18 Original Serial #: S035152 D4292-1 PART NO: Revision: Operation: Change No: Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K64 1K7 CANADA TEL: 1 613 632-5200 Email: sales@dartaero.com www.dartaerospace.com		Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____																																					
Root Cause <table style="width:100%; border: none;"> <tr><td style="border: none;">Environment ☐</td><td style="border: none;">No Re-verification ☐</td></tr> <tr><td style="border: none;">Design ☐</td><td style="border: none;">Operator ☐</td></tr> <tr><td style="border: none;">Doc/Data ☐</td><td style="border: none;">Offset/Setup ☐</td></tr> <tr><td style="border: none;">Equip/Tooling ☐</td><td style="border: none;">Supplier ☐</td></tr> <tr><td style="border: none;">Handling/Pre ☐</td><td style="border: none;">Training ☐</td></tr> <tr><td style="border: none;">Material ☐</td><td style="border: none;">Use for Testing ☐</td></tr> <tr><td style="border: none;">Internal Transport ☐</td><td style="border: none;">Poor Information ☐</td></tr> <tr><td style="border: none;">Tribal Knowledge ☐</td><td style="border: none;">Rushing ☐</td></tr> <tr><td style="border: none;">LOA ☐</td><td style="border: none;">Product Improvement ☐</td></tr> <tr><td style="border: none;">Substation ☐</td><td style="border: none;">Process Improvement ☐</td></tr> <tr><td style="border: none;">Past Expiry Date ☐</td><td style="border: none;">Manufacturing Process ☐</td></tr> <tr><td style="border: none;">Misidentified ☐</td><td style="border: none;">Past Due ☐</td></tr> </table>		Environment ☐	No Re-verification ☐	Design ☐	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☐	Substation ☐	Process Improvement ☐	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	<table style="width:100%; border: none;"> <tr> <td style="border: none;">☐ Crushing</td> <td style="border: none;">☐ Countersink</td> <td style="border: none;">☐ Off-set</td> </tr> <tr> <td style="border: none;">☐ Heat Treat</td> <td style="border: none;">☐ Cut Too Short</td> <td style="border: none;">☐ Mislabeled</td> </tr> <tr> <td style="border: none;">☐ Wave/Twist in Tube</td> <td style="border: none;">☐ Instructions Incomplete/Unclear</td> <td style="border: none;">☐ Fit/Function</td> </tr> <tr> <td style="border: none;">☐ Marks/Chatter</td> <td style="border: none;">☐ Drill Holes</td> <td style="border: none;">☐ Misaligned/off center</td> </tr> </table>				☐ Crushing	☐ Countersink	☐ Off-set	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center
Environment ☐	No Re-verification ☐																																								
Design ☐	Operator ☐																																								
Doc/Data ☐	Offset/Setup ☐																																								
Equip/Tooling ☐	Supplier ☐																																								
Handling/Pre ☐	Training ☐																																								
Material ☐	Use for Testing ☐																																								
Internal Transport ☐	Poor Information ☐																																								
Tribal Knowledge ☐	Rushing ☐																																								
LOA ☐	Product Improvement ☐																																								
Substation ☐	Process Improvement ☐																																								
Past Expiry Date ☐	Manufacturing Process ☐																																								
Misidentified ☐	Past Due ☐																																								
☐ Crushing	☐ Countersink	☐ Off-set																																							
☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled																																							
☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function																																							
☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center																																							
OTHER : _____		<table style="width:100%; border: none;"> <tr><td style="border: none;">☐ Positioned Wrong</td></tr> <tr><td style="border: none;">☐ Outside Dimensions</td></tr> <tr><td style="border: none;">☐ Over/Under tolerance</td></tr> <tr><td style="border: none;">☐ Part Incorrect</td></tr> <tr><td style="border: none;">☐ Part Lost/Missing</td></tr> <tr><td style="border: none;">☐ Part Moved</td></tr> <tr><td style="border: none;">☐ Drawing</td></tr> <tr><td style="border: none;">☐ Finish</td></tr> <tr><td style="border: none;">☐ Misread</td></tr> <tr><td style="border: none;">☐ Turning Sequence</td></tr> </table>				☐ Positioned Wrong	☐ Outside Dimensions	☐ Over/Under tolerance	☐ Part Incorrect	☐ Part Lost/Missing	☐ Part Moved	☐ Drawing	☐ Finish	☐ Misread	☐ Turning Sequence																										
☐ Positioned Wrong																																									
☐ Outside Dimensions																																									
☐ Over/Under tolerance																																									
☐ Part Incorrect																																									
☐ Part Lost/Missing																																									
☐ Part Moved																																									
☐ Drawing																																									
☐ Finish																																									
☐ Misread																																									
☐ Turning Sequence																																									

			0.265	
6	Fitting	0.800Inches ± 0.010	0.810 0.790	.801
7	Fitting	0.825Inches ± 0.010	0.835 0.815	.826
8	Fitting	0.375Inches ± 0.010	0.385 0.365	.372
9	Fitting	0.310Inches ± 0.030	0.340 0.280	.312
10	Fitting	0.880Inches ± 0.030	0.910 0.850	.872
11	Fitting	0.663Inches ± 0.010	0.673 0.653	.659
12	Fitting	0.381Inches + 0.000 - 0.001	0.381 0.380	.380
13	Fitting	1.125Inches ± 0.010	1.135 1.115	1.123
14	Fitting	1.063Inches ± 0.010	1.073 1.053	1.061
15	Fitting	3.440Inches ± 0.030	3.470 3.410	3.440
16	Fitting	2.450Inches ± 0.010	2.460 2.440	2.450
17	Fitting	1.325Inches ± 0.010	1.335 1.315	1.323
18	Fitting	0.300Inches ± 0.010	0.310 0.290	.299
19	Fitting	1.200Inches ± 0.010	1.210 1.190	1.200
20	Fitting	2.840Inches ± 0.030	2.870 2.810	2.835
21	Fitting	0.190Inches ± 0.030	0.220 0.160	.187
22	Fitting	5.860Inches ± 0.030	5.890 5.830	5.858
23	Fitting	5.990Inches ± 0.030	6.020 5.960	5.988
24	Fitting	0.272Inches + 0.006 - 0.001	0.278 0.271	.272
25	Fitting	0.266Inches + 0.006 - 0.001	0.272 0.265	.267
26	Fitting	1.750Inches ± 0.030	1.780 1.720	1.753
27	Fitting	0.250Inches ± 0.030	0.280 0.220	.250
28	Fitting	0.060Inches ± 0.030	0.090 0.030	.060
29	Fitting	4.875Inches ± 0.010	4.885 4.865	4.875
30	Fitting	0.493Inches ± 0.010	0.503 0.483	.490
31	Fitting	0.765Inches ± 0.010	0.775 0.755	.765
32	Fitting	0.250Inches + 0.030 - 0.010	0.280 0.240	.255
33	Fitting	0.680Inches ± 0.010	0.690 0.670	.678
34	Fitting	2.250Inches ± 0.010	2.260 2.240	2.250
35	Fitting	4.500Inches ± 0.010	4.510 4.490	4.500
36	Fitting	1.275Inches ± 0.010	1.285 1.265	1.275
37	Fitting	0.031Inches ± 0.010	0.041 0.021	.031

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

38	Fitting	0.130Inches ± 0.030	0.160 0.100	Radius	.130
39	Fitting	1.650Inches ± 0.030	1.680 1.620		1.648
40	Fitting	1.421Inches ± 0.010	1.431 1.411		1.421

Plex 1/16/18 8:45 AM dart.poulin.mario

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					